# UNITED STATES PATENT AND TRADEMARK OFFICE

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/084,780 | 02/25/2002 | Christopher Andrew Hinsley | 4362-4002 | 1272 |

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| EXAMINER |
|---|
| ZHEN, WEI Y |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2191 | |

DATE MAILED: 05/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

| | Application No. | Applicant(s) |
| | 10/084,780 | HINSLEY ET AL. |
| *Office Action Summary* | Examiner | Art Unit |
| | Wei Y. Zhen | 2191 |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) ☒ Responsive to communication(s) filed on _25 February 2002_.

2a) ☐ This action is **FINAL**.    2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) ☒ Claim(s) _1-32_ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) _1-32_ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All   b)☐ Some *  c)☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)    4) ☐ Interview Summary (PTO-413)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)       Paper No(s)/Mail Date. _____ .
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)   5) ☐ Notice of Informal Patent Application (PTO-152)
    Paper No(s)/Mail Date _2/25/2002_.    6) ☐ Other: _____.

## DETAILED ACTION

1.      This office action is in response to the application filed on 2/25/2002.

2.      Claims 1-32 are pending.

### *Claim Rejections - 35 USC § 112*

3.      The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for

failing to particularly point out and distinctly claim the subject matter which applicant regards as

the invention. Claim 11 recites "which the fixup instructions are transferred, *substantially*

*functionally unaltered*" which render the claim language vague and indefinite. The Examiner

can not determine whether the fixup instructions are functionally unaltered or not. For the

purpose of applying prior art, the Examiner is interpreting this limitation as "which the fixup

instructions are transferred, functionally unaltered".

### *Claim Rejections - 35 USC § 101*

4.      35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 30-32 are rejected under 35 U.S.C. 101 because they are directed to non-statutory

subject matter.

Claims 30 and 32 recites "a computer program or a data stream" which is non-statutory

because it is not being **tangibly embodied** in a manner so as to be executable.

Claim 31 recites "A data carrier" which is non-statutory as not being **tangibly embodied**

in a manner so as to be executable.

## *Claim Rejections - 35 USC § 102*

5.     The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999

(AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002

do not apply when the reference is a U.S. patent resulting directly or indirectly from an

international application filed before November 29, 2000. Therefore, the prior art date of the

reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA

35 U.S.C. 102(e)).

Claims 1-25, 27-32 are rejected under 35 U.S.C. 102(e) as being anticipated by Miller et

al, U.S. Patent No. 6,389,590.

As per claim 1, Miller et al discloses

A method of translating an object-oriented computer program  (Fig. 2, VC++ compiler )

comprising:

(a) translating the program bytecode into machine independent virtual processor code

which uses an instruction set of a virtual processor (col. 1 lines 10-15, col. 1 lines 15-20, col. 6

lines 1-10);

(b) translating the virtual processor code into native code which uses an instruction set of

a physical processor (col. 1 lines 15-20, col. 6 lines 1-10 and Fig. 2).

As per claim 2, the rejection of claim 1 is incorporated and further Miller et al disclose

which the program bytecode includes a class file, the class file being converted into one or more

virtual processor tools which use the instruction set of the virtual processor (col. 7 lines 30-43).

As per claim 3, the rejection of claim 2 is incorporated and further Miller et al disclose

which the class file includes a plurality of methods, and which some or all the methods in the

class file are converted to a respective virtual processor tool (col. 7 lines 30-43).

As per claim 4, the rejection of claim 2 is incorporated and further Miller et al disclose

which the      class file includes a call to a method, and in which the virtual processor code

provides a call to a corresponding tool (col. 7 lines 30-43).

As per claim 5, the rejection of claim 2 is incorporated and further Miller et al disclose

which the class file includes a reference to a field, and in which the virtual processor code

provides a fixup tool for use in locating the field (col. 7 lines 20-30, col. 7 lines 37-46).

As per claim 6, the rejection of claim 5 is incorporated and further Miller et al discloses

which the fixup tool is arranged to return a constant fixup value which is representative of the

offset of the said field within an object (col. 7 lines 20-30, col. 7 lines 37-46).

As per claim 7, the rejection of claim 6 is incorporated and further Miller et al discloses

linking the virtual processor code and determining the constant fixup value in dependence upon

virtual processor code which has been translated from another class file (col. 6 lines 30-36, col. 7

lines 20-46).

As per claim 8, the rejection of claim 6 is incorporated and further Miller et al discloses

which the fixup tool returns a value which is used to patch a method which gets or puts the value

of a field (col. 6 lines 30-36, col. 7 lines 20-46).

As per claim 9, the rejection of claim 6 is incorporated and further Miller et al discloses

which the virtual processor code has, included within it at a plurality of points, fixup instructions

which indicate that the code at the said points has to be modified by the respective fixup

instruction prior to use (Fig. 3, col. 7 lines 21-45 and col. 8 lines 3-11).

As per claim 10, the rejection of claim 7 is incorporated further Miller discloses which

the fixup instructions provide instructions as to how the native code can reference another class,

or a field or method in another class (Fig. 3, col. 7 lines 21-45 and col. 8 lines 3-11).

As per claim 11, the rejection of claim 9 is incorporated and further Miller discloses

which the fixup instructions are transferred, functionally unaltered, by the native translator into

the native code (col. 1 lines 15-20, col. 6 lines 1-10 and Fig. 2); the fixup instructions being

replaced with native instructions when the native code is bound on the said real physical

processor (col. 1 lines 15-20, col. 6 lines 1-10 and Fig. 2).

As per claim 12, the rejection of claim 1 is incorporated and further Miller et al discloses

which the bytecode is stack-based, and in which the virtual processor code is register-based (col.

1 lines 15-20, col. 6 lines 1-10 and Fig. 2).

As per claim 13, Miller further discloses method of executing an object oriented computer program comprising translating the program into native code as claimed in any one of the preceding claims, and executing the native code on the physical processor (col. 1 lines 15-20, col. 6 lines 1-10 and Fig. 2).

As per claim 14, the rejection of claim 13 is incorporated and further Miller discloses including binding the translated tools into a task, and executing the task in native code on the physical processor (Fig. 2 and col. 6 lines 17-37).

As per claim 15, Miller further discloses computer system adapted to carry out a method as claimed in any one of the preceding claims (col. 4 lines 28-29).

As per claim 16, Miller further discloses translating the virtual processor code into a different native code which uses an instruction set of a second physical processor (col. 1 lines 15-20, col. 6 lines 1-10 and Fig. 2).

As per claim 17, Miller further discloses executing the different native code on the second physical processor (col. 1 lines 15-20, col. 6 lines 1-10 and Fig. 2).

As per claim18 , Miller further discloses a computer system adapted to carry out a method as claimed in claim 16 (col. 4 lines 28-29).

As per claim 19, Miller et al discloses a distributed computer system (col. 4 lines 32-37) comprising a server including a store for storing virtual processor code, said code being a machine-independent representation of an object oriented computer program (col. 4 lines 32-37, col. 1 lines 10-15, col. 1 lines 15-20, col. 6 lines 1-10);

a plurality of remote client devices in communication with the server, each client device including a client processor, a native translator arranged to translate the virtual processor code

into native code which uses the instruction set of the respective client processor, and a native

code store; the system including transmission means for transmitting the virtual processor code

from the server to the client devices (col. 4 lines 32-37, col. 1 lines 15-20, col. 6 lines 1-10 and

Fig. 2).


As per claim 20, Miller further discloses distributed computer system as claimed in claim

19 in which the transmission means consists of or includes a wireless network (col. 5 lines 30-

45).

As per claim 21, Miller further discloses distributed computer system as claimed in claim

20 in which the client devices are mobile phones (col. 4 lines 26-32).

As per claim 22, Miller further discloses a distributed computer system as claimed in

claim 20 in which the client devices are hand-held computers (col. 4 lines 26-32).

As per claim 23, Miller further discloses a distributed computer system as claimed in

claim 19 which the client devices are hand-held games consoles (col. 4 lines 26-32).

As per claim 24, Miller further discloses a distributed computer system as claimed in

claim 19 in which at least one of the client devices includes a first type of client processor and in

which at least another of the client devices includes a second type of client processor, using a

different instruction set from that of the first type (col. 1 lines 10-20, col. 6 lines 1-10 and Fig. 2).

As per claim 25, Miller further discloses which the server is further arranged to translate

the object-oriented computer program from bytecode into virtual processor code (col. 1 lines 10-

20, col. 6 lines 1-10 and Fig. 2).

As per claim 27, Miller discloses which the class file is a Java class file (col. 1 line 18-19, col. 6 lines 1-10).

As per claim 28, Miller discloses translating the program bytecode into virtual processor code is carried out by a first translator program which is itself written in virtual processor code (col. 1 lines 1-19, col. 6 lines 1-10).

As per claim 29, Miller discloses the step of translating the virtual processor code into native code is carried out by a second translator program which is itself written in virtual processor code (col. 1 lines 1-19, col. 6 lines 1-10).

Claims 30-32 are rejected for the reason set forth in the rejection of claim 1.

## Claim Rejections - 35 USC § 103

6.      The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miller et al, U.S. Patent No. 6,389,590 in view of Gosling, U.S. Patent No. 5,668,999.

As per claim 26, Miller does not explicitly disclose verifying the integrity of the class bytecode, and of any external calls. However, Gosling disclose verifying the integrity of code (Abstract).

Therefore, it would have been obvious to one having ordinary skill in the art to incorporate the teaching of Gosling into the teaching of Miller to verifying the integrity of the

class bytecode and of any external calls because one would want to ensure the proper execution of the code on the physical processor.

## *Conclusion*

7.      Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wei Y. Zhen whose telephone number is (571) 272-3708. The examiner can normally be reached on Monday-Friday, 8 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Dam can be reached on (571) 272-3695. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WEI Y. ZHEN
PRIMARY EXAMINER

Wei Zhen
4/28/2005